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ABSTRACT

To determine the influence of the health care provider's gender and profession on readers' memory for health information, 48 university students were asked to read a three page article on heart attacks that was attributed to either (1) a female nurse, (2) a male nurse, (3) a female physician, or (4) a male physician. After reading the article, the subjects were asked to recall the author's name and profession, to rate author competence and article informativeness, and to complete a recognition memory task. Analysis revealed a higher recall rate among subjects who believed they had read an article by a male or female nurse; no significant main effects were found for gender. While "gender effects" were not observed, it is noteworthy that earlier projects that reported gender effects used videotapes or audiotapes, rather than written stimuli as in the present study. Reasons for the higher recall among subjects assigned to nurses could include expectations that articles written by doctors would be too difficult to understand and increased attentiveness to articles written by people who go counter to the reader's expectations about the type of health care professional who would author such an article. (MM)

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Do Gender and Type of Health Professional Influence Effectiveness?[1]

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Introduction

One way in which the effectiveness of health care professionals can be gauged is through the assessment of the effectiveness of their communication skills. Health communication skills in turn, can be assessed by examining how well patients remember health information. In the past few years several investigators have reported diverse data on the average patient's memory for health information, even when only one type of source, namely a physician, was considered. The issue is complicated by the diversity of sources of health information. Two notable ways in which health care providers differ are: most are either physicians or nurses, and either male or female. Furthermore, health information from these sources is usually conveyed to patients in one of three ways: 1. in writing (verbal), 2. in speech (verbal plus vocal cues), or 3. in person (verbal plus vocal plus visual cues). The present study is one of a series which examines the degree to which the health care provider's gender and type influences the effectiveness of the reader's memory for health information. The other studies in the se ries will examine the other communication alternatives (2 and 3 above) used in health communication.

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One of the concerns of those researchers and practitioners interested in health communication has been listening. As Bush (1983) has noted, one measure of effective listening in the health care setting is the patient's memory for health information. Much of the research on the ability of patients to remember what their doctor tells them indicates that such recall is a 50/50 proposition (Ley, 1982). However, Pendleton (1982) has reported that patients remember a higher percentage of information that was important (as judged by the physician) than that which was judged to of more general importance (73% for important vs. 50.7% for general), with recall rates even higher for certain types of information (83% for information on medication). These differences in patient recall for distinct types of information were reported in an earlier study by Anderson (1979), who reported better memory for information about treatment than about diagnosis. While these studies suggest that patients use selective attention in their health listening, they are unfortunately restricted to health information received from physicians during an office visit. Therefore, they inform us only about the ability of patients to recall or recognize health information which has been provided by a physician (who is typically a male) in a face-to-face encounter. It is not clear that these findings will generalize to the exchange of health information when the information is provided by female phyisians, or by male or female nurses, an experience which is becoming increasingly common in the U.S. health care delivery system, particularly since there has been a 250 percent increase in the number of females entering medicine from 1970 to 1980 (Arntson et al., 1982). Thus, gender and profession (type of health care provider) are two characteristics of a provider of health care

information that may influence the extent to which a patient remembers that information.

Gender has been shown to influence both the extent to which a person's spoken messages are remembered (Gruber & Gaebelein, 1979) and the evaluation of their professional credentials (Fidell, 1970; Rosen & Jerdee, 1974). In general, the biases disclosed in these studies have favored males. That such biases may be related to professional stereotypes is suggested by the work of Schien (1973; 1975), who found that, in the case of managers, there was greater perceived congruence between the managerial role and the male role, whether the raters were male or female managers. A similar relationship may exist among health care providers. The historical trend (particularly in the U.S.) for physicians to be male and nurses to be female may have created a situation in which there is greater perceived congruence between the physician's role and the male role and, similarly, between the nurse's role and the female role. Thus, it could be expected that male physicians would be perceived as being more congruent with the physician's role, and thus, more competent as physicians. The same pattern would hold for female nurses and the nurse's role, if these professional stereotypes are as closely related to the sex roles as was the case with managers. When these relationships are considered in the light of the findings of Gruber and Gaebelien (1979), it would be reasonable to expect that people would remember medical information more effectively from male physicians than from female physicians. Gruber and Gaebelein have shown that listeners of either sex remember what a male has said more accurately than what a female has said, regardless of the sex-typing of the topic. Furthermore, these authors found that

there was no difference in the competence ratings given by subjects who watched female speakers and those who watched male speakers give a talk on the same subjects in videotaped presentations. The implications of this study for physician-nurse differences and sex differences among nurses will be considered after a brief discussion of some consequences of physician gender.

A recent review of the research on the effect of a physician's gender on the physician-patient relationship (Gray, 1982) considered two categories of resarch particularly relevant to these issues: patient preferences and physician-patient interactions. Gray cites a number of studies which indicate that female patients tend to prefer female physicians, a finding also reported by Kelly (1980). Gray also reviewed evidence that suggests that both sexes find it easier to speak with female physicians. Young (1980), in a laboratory study, however, found that willingness to disclose symptoms to a physician was influenced by perceived technical and social competence, but not by the physician's gender or attractiveness. However, by separating sex from social competence, this study may have eliminated a potential source of sex bias in health communication.

While these studies have examined variables that are informative about the expressiveness of patients to physicians, they tell us little about the receptiveness of patients to information which is provided by physicians of either gender. Furthermore, since an increasing amount of patient contact in the U.S. is being conducted by nurses and there are increasing numbers of males in the nursing profession, it would be of interest to determine whether patients are more receptive to health information which is provided by members of either professional category who are male or female.

The literature on sex differences in the speaker's impact on the ability of the listener to remember what the speaker has said suggests that patients should remember information better when it is provided by a male than when it is provided by a female. Gruber and Gaebelein (1979), for example, found that listeners of both sexes remembered information better when it was presented by a male, regardless of the sex-type of the topic (masculine, neutral, feminine). In their study, male and female speakers, previously screened for effectiveness in public speaking, were videotaped while delivering each of the three sex-typed talks. Both male and female subjects remembered more from the videotapes of the male speakers than the female speakers, but there was no difference in the rated effectiveness of male and female speakers. More recently, Hall, Braunwald and Mroz (in press) used audiotapes of males and females explaining Cardio Pulmonary Resuscitation (CPR) on the telephone and found that raters gave females superior performance ratings but remembered the same amount from both sexes. Taken together, both studies seem to suggest that, given presentations with equal ratings, a listener remembers more when the speaker is male. In the case of health care practitioners, if females are perceived as superior in terms of effectivenss, as Gray suggests, then their presentations should be remembered as well or better than those males.

These two studies differ in two important ways. Hall et al. (in press) presented audiotaped stimulus material which combines the verbal and vocal channels of communication much like radio or telephone, while Gruber and Gaebelein (1979) presented videotaped stimulus material which combines the verbal, vocal and visual channels in a manner somewhat similar to face-to-face

interaction. Thus, the former uses one nonverbal channel, while the latter uses two. A second difference concerns the cross sex similarity in stimulus material. While Gruber and Gaebelein (1979) used identical texts for male and female video recordings, Hall et al. (in press) used audiotape recordings of spontaneous explanations of CPR. Thus, while the former used identical stimuli for males and females, the latter failed to control for potential sex differences in skill for articulating explanations.

Neither study attempted to compare performance on their mixed (verbal and nonverbal) task with performance on a similar purely verbal task which would have simply required subjects to read tests attributed to authors of either sex to determine if a difference exists between the tasks which may be due to the presence of nonverbal cues as a factor which may be distinguished from sex-role stereotypes. Mehrabian (1981) has reviewed the evidence which suggests that visual and vocal messages add a great deal to the total message. The feelings that are conveyed nonverbally are generally given much more evaluative weight than those conveyed verbally and the greatest impact results from the visual channel. However, since these nonverbal channels are used primarily for information about feelings, they may at times distract the listener from the factual content, particularly if the feelings being conveyed are unclear or "mixed". Hall (1979) has reported that an extraordinary proportion of the studies of sex differences in nonverbal encoding and decoding skills indicate that females are superior in the expression and reception of nonverbally expressed affect. A possible explanation for the lower memory scores for subjects who "listened to" videotapes of females in the Gruber and Gaebelein

(1979) student could be that the female speakers conveyed more nonverbal feelings which distracted the listener's attention from the verbal component of the speaker's message. Thus, while the feeling component may have been more successfully conveyed, the content component may have been less adequately received as a consequence.

This review of the literature suggests that there may be differences in the memory of patients for health information that may be due to characteristics of the source of the information which is communicated (e.g., gender, profession) and the mode in which it is communicated (written, spoken). Too often past research on such related concerns as the role of communication in patient compliance has failed to distinguish between verbal and nonverbal components of communication and has often ignored potential sex differences (Bush & Carroll, 1982). It is difficult, for example, to compare the conclusions of a study which used an audiotaped recording of female physicians (Hall, et al., 1981) with another which used videotaped recordings of both males and females (Friedman, et al., 1980). As Pendleton (1982) has noted, memory for instructions is an important prerequisite for compliance. What is needed is a systematic treatment of these influences on a patient's memory for health information so that both researchers and practitioners will have a better understanding of how these health care outcomes can be achieved.

A prelimary investigation was conducted using written health communication. A three page article on heart disease was used after a survey was conducted which indicated that it received the highest interest rating of a large list of health problems. Gender and profession of author were manipulated by changing the name

and professional designation of the author's name printed below the title of the article. Subjects were randomly assigned to gender and profession conditions and asked to complete a measure adapted from the Gruber and Gaebelein (1979) study. A 2 (gender) by 2 (profession) Analysis of Variance on the recognition memory data indicated that the main effect of profession was significant, but the effect of gender was not. However, there was a significant gender by profession interaction. Subjects who read the article attributed to a male or female nurse recalled significantly more than those who read the article attributed to a physician. However, those subjects who read an article by a male physician remembered significantly less than those who read an article by a female physician. Those in the female physician condition received scores very close to those in the male and female nurse conditions.

The study discussed in the remainder of this paper is a replication of the preliminary investigation. The inferior performance resulting from the male physician author condition was not anticipated on the basis of previous literature, since the relevant research suggested that males, in fact, should have produced better memory performance. The present study was a replication of the preliminary study.

METHOD

Subjects. Forty-eight subjects were drawn from three university classes. The informed consent procedure permitted withdrawal from the study by those who so desired. They were told that they would learn more about heart disease and be asked about their knowledge and attitudes in the study. Two previous surveys of students on campus had found that the illness category in which they indicated

the greatest interest was heart disease.

Procedure. Prior to reading a three page article about heart attacks, subjects were asked to rate their interest in the subject and their knowledge of the subject on Likert scales. Subjects were then randomly assigned to one of four authorship conditions. The article on heart attacks was attributed to either, a) a female nurse, Karen L. Brown,R.N.; b) a male nurse, Kenneth L. Brown,R.N.; c) a female physician, Karen L. Brown, M.D.; c) a male physician, Kenneth L. Brown, M.D. Steps were taken to insure that the subjects were not aware of the differences in authorship. As soon as the subjects had finished reading the three page article on heart attack, they were asked to return it to the experimenter in exchange for a brief questionaire concerning the article they had just finished reading. The subjects were asked to copy the code number from the story onto both the initial rating form and the second questionaire. This insured that the dependent measures would be assigned to the appropriate conditions. The second questionaire asked the subjects to recall the author's name and the author's profession to rate author competence and article informativeness, and to complete a recognition memory task.

Design. The design was a 2 (gender) by 2 (profession) factorial design with 12 subjects per cell. The gender variable was manipulated by the use of male and female surnames, while the profession variable was manipulated by the use of the appropriate academic degree designations following each name.

RESULTS

The analysis of variance computed for recognition memory indicated that the subjects in the "nurse" condition (male nurse = 8.6, female nurse = 8.5) had a

higher mean score than the subjects in the "physician" condition (female physician = 8.33, male physician = 7.33) (F = 4.1884, df=1,44; p - .05). There was no significant main effect for gender of author, nor did the interaction between gender and profession reach significance in the present study. The mean recognition memory scores for each experimental condition are presented in Figure 1.

The analysis of variance for free recall was computed and neither independent variable produced a statistically significant effect.

DISCUSSION

These results are quite different than would be expected on the basis of research which has included vocal and visual cues (Gruber & Gaebelein, 1979; Hall, et al., in press) and research on the interaction of sex-role and professional stereotypes. As in the pilot study mentioned in the introduction, these subjects remembered significantly more when authorship was attributed to a nurse of either gender, even though no significant differences were observed in subjects' estimates of the author's effectiveness, the author's professional competence, nor article informativeness. While "gender effects" were not observed, it is noteworthy that those studies that have reported gender effects with similar procedures have presented stimuli that were either videotaped or audiotaped, rather than written as in the present study. The design used in this study is now being replicated with both types of presentation (audio- and videotape), since we suspect that nonverbal cues are involved in the previously observed gender differences.

The better performance on the recognition memory task by those subjects

assigned to the nurse could be explained in terms of two types of attribution that would lead to greater attentiveness on the part of the subjects. First, these subjects may have attributed certain characteristics to physicians (especially males), such as the tendency to use jargon and to communicate in a manner that "goes over the patient's head". Such negative expectations could produce "self talk" which interferes with memorization, as in the example, "I'd never be able to understand what a doctor would write". In contrast, nurses may be perceived as being more likely to present information in a manner which is more readily understood by those who are not health care professionals. Therefore, the subject would be more likely to attempt to remember that which they felt they would be able to understand.

A second possible attribution concerns the reader's expectations about the type of health care professional who would be the author of such an article. If by being a nurse, the author violates the reader's expectations, the reader may then be more attentive than if the article had been written by a physician. Data from a more recent study designed to answer these questions are currently being analyzed. These data will also probe the possiblity that sex role stereotypes not detected in the present study may influence expectations of physicians and nurses.

Finally, from an applied orientation, concern with memory for health information is an important means of assessing provider effectiveness because it is one of the few ways in which a physician can expect to influence patients after they have left the office. Recently, Pendleton (1982) has suggested that physicians are inclined to give less information to patients from lower

socio-economic classes, even though his findings indicate that patients from those classes did not exhibit poorer memory for health information. The present study suggests that physicians may not be the only participants in the practitioner-patient interaction with a bias concerning memory for health information. The patients may have a bias that differentially influences the effectiveness of their listening to and reading of health information.

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